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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,073

03/23/2006

Jean-Pierre Huignard

4590-501

6967

33308 7590 02/14/2008  
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EXAMINER

TURNER, SAMUEL A

ART UNIT

PAPER NUMBER

2877

MAIL DATE

DELIVERY MODE

02/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,073	<b>Applicant(s)</b> HUIGNARD ET AL.	
	<b>Examiner</b> SAMUEL A. TURNER	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)                            |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application                  |
| Paper No(s)/Mail Date <u>3/23/06</u> .   | 6) <input checked="" type="checkbox"/> Other: <u>requirement for information</u> . |

## DETAILED ACTION

### ***Preliminary Amendment***

The preliminary amendment filed 23 March 2006 has been entered.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 23 March 2006 has been considered by the examiner except for FR 2,516,232 A, dated 13 May 1983. Rule 37 CFR 1.98(a)(2) requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed.

### **Requirements for Information**

This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

### ***Title***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the **invention** to which the claims are directed.

### ***Abstract***

The abstract of the disclosure is objected to because the form and legal phraseology often used in patent claims must be avoided. Correction is required. See MPEP § 608.01(b).

### ***Specification***

The substitute specification filed 23 May 2006 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) because: the statement as to a lack of new matter under 37 CFR 1.125(b) is missing.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the two gratings of claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

### **Replacement Drawing Sheets**

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

### **Annotated Drawing Sheets**

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The

annotated drawing sheet(s) must be clearly labeled as “Annotated Sheet” and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

### **Timing of Corrections**

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the “Notice of Allowability.” Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

### ***Claim Objections***

Claims 11-13, and 19 are objected to under 37 CFR 1.75(c).

In claims 11 and 19, there is no antecedent basis for “the laser cavity”. Claim 11 provides antecedent basis for a laser source or an optical cavity.

In claims 12 and 13, there is no antecedent basis for “the splitter”. Claim 11 provides antecedent basis for “a beam splitter device”.

### ***Claim Rejections - 35 USC § 112, second paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11-20 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claims 11 the relationship between the laser source and the beam splitter is confusing. The laser source is defined as “an optical cavity having a gain lasing medium” and includes a “beam splitter device” which is associated with a “reflecting device”. The beam splitter device and the reflecting device are along the path of the output beam, however the devices are part of the laser source, thus appear to be inside the cavity. The phrase “the beam split off from the beam output by the laser cavity” appears to place the beam splitter device outside the cavity which contradicts the laser source structure claimed. In claim 11, the “device for making the beam from the laser source interfere with the beam coming from the optical fiber” is confusing because “the beam coming from the optical fiber” is directed to the “gain lasing medium” not to any interfering device. In claim 11, the “reflecting device” and the “device for making the beam from the laser source interfere with the beam coming from the optical fiber” have no defined connection to the remaining claimed structure. These “devices” have no claimed relationship with the beam output from the laser cavity or the split beam. The omission of the relationships amounting to a gap between the elements. See MPEP § 2172.01. Claims 12-20 are dependent from claim 11 and therefor are also included in the rejection.

In claims 12-20, the phrase “The device as claimed in claim” is confusing because the claims fail to indicate which device these claims further limit. For example, there are four different devices in claim 11.

Claim 12 defines the “reflecting device” as a mirror. However the relationship between the “beam splitter device” and the “reflecting device” is confusing because the claim states that they are “different”. A mirror and a beam splitting device are different types of optical elements. Further, claim 11 does define two different elements; a beam splitter and a reflecting device. Claim 12 fails to define what is meant by “different”. Claim 14 is dependent from claim 12 and therefor is also included in the rejection.

Claim 13 is confusing because the number of reflecting devices is undefined. Claim 11 provides a reflecting device and claim 13 limits the splitter to a diffraction grating which functions as a reflecting device. Claims 15-17 are dependent from claim 13 and therefor are also included in the rejection.

Claim 14 is confusing because it fails to which of the mirrors claim 14 further limits; The nonlinear mirror of claim 11 or the mirror of claim 12.

Claim 17 is confusing because the number of grating claimed is undefined. The claim appears to define the grating of claim 13 as comprising two gratings, an index grating and a relief grating.

In claim 19, the relationship between the polarizer and the two quarter-wave plates, and the gain lasing medium, the beam splitter device and the reflecting

device from claim 11 is undefined. Claim 20 is dependent from claim 19 and therefor is also included in the rejection.

***Relevant Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bordé(4,575,245), see figure 2; Huignard et al(4,659,223), see figures 6 and 11; McMichael(4,944,591), see figures 1 and 2; Grynberg et al (5,004,341), see figure 2; Roosen et al(6,674,782), see figure 2; and Brignon et al(Applied Physics B- 1999), see figure 1.

***Allowable Subject Matter***

Claims 11-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. § 112, 2nd paragraph, set forth in this Office action.

The following is an examiner's statement of reasons for allowance:

With regard to claim 11, based on the examiners understanding of the claim limitations, the prior art of record fails to teach a fiber-optic interferometric rotation speed sensor where the laser source is also the nonlinear mirror and is located in the Sagnac loop path, in combination with the remaining limitations of claim 11. Claims 12-20 are dependent from claim 11 and therefor also include the allowed subject matter.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is 571-272-2432.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on 571-272-2800 ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Samuel A. Turner/  
Primary Examiner  
Art Unit 2877

### **Requirements for Information**

Applicant and the assignee of this application are required under 37 CFR § 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application. In response to this requirement, please provide a copy of the Graindorge et al article mentioned on the first page of applicants specification. The article cannot be accessed by the examiner through the internet or available non-patent literature databases.

This requirement is based on applicant's description of the Graindorge et al article which appears to be relevant to the patentability of the claimed invention, see MPEP 704.

In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is 571-272-2432.

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/Samuel A. Turner/  
Primary Examiner  
Art Unit 2877